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TO : Commissioner for Patents
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FROM : Oleg F. Kaplun, Esq. of Fay Kaplun & Marcin, LLP

DATE : June 7, 2006

SUBJECT : U.S. Patent Appln. Serial No. 09/976,338
for Transmission of Video Using Variable Rate Modulation
Phillips Ref.: US 010526

NUMBER OF PAGES INCLUDING COVER : 15

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Attorney Docket No.: US010526

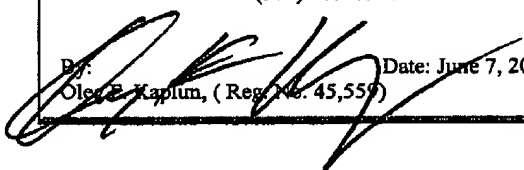
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**RECEIVED
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Inventor(s) : Krishnamachari et al.
Serial No. : 09/976,338
Filing Date : October 12, 2001
For : Transmission of Video Using Variable Rate Modulation
Group Art Unit: : 2613
Examiner : Young Lee

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By:  Date: June 7, 2006
Oleg F. Kaplun, (Reg. No. 45,559)

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Respectfully submitted,

Dated: June 7, 2006


By: 
Oleg F. Kaplun, Reg. 45,559

Attorney Docket No.: US010526

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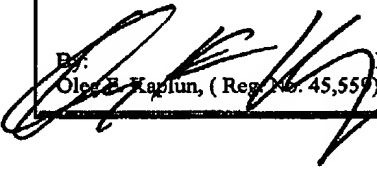
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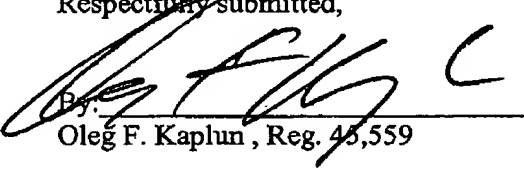
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Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of:)	
)	
Santhana Krishnamachari et al.)	
)	
Serial No.: 09/976,338)	Group Art Unit: 2613
)	
Filed: October 12, 2001)	Examiner: Young Lee
)	
For: TRANSMISSION OF VIDEO)	Board of Patent Appeals and
USING VARIABLE RATE)	Interferences
MODULATION)	

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Alexandria, VA 22313-1450

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

In support of the Notice of Appeal filed April 17, 2006, and pursuant to 37 C.F.R. § 41.37, Appellants present their appeal brief in the above-captioned application.

This is an appeal to the Board of Patent Appeals and Interferences from the Examiner's final rejection of claims 1, 2, 4-17, and 19-21 in the Final Office Action dated January 17, 2006. The appealed claims are set forth in the attached Claims Appendix.

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Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

1. Real Party in Interest

This application is assigned to Koninklijke Philips Electronics N.V., the real party in interest.

2. Related Appeals and Interferences

There are no other appeals or interferences which would directly affect, be directly affected, or have a bearing on the instant appeal.

3. Status of the Claims

Claims 1, 2, 4-17, and 19-21 have been rejected in the final Office Action. The final rejection of claims 1, 2, 4-17, and 19-21 is being appealed.

4. Status of Amendments

All amendments submitted by the Appellants have been entered.

5. Summary of Claimed Subject Matter

The present invention, as recited in claim 1, relates to a system for transmitting encoded video signals. Specifically, the present invention describes a system for partitioning encoded video data into a plurality of streams. (See Specification, p. 5, ll. 10-12). A determination of a priority is made for each of the plurality of streams of encoded video data. (See *Id.*, p. 5, ll. 17-18). A variable modulation rate for each stream of encoded video data is assigned based on the determined priority where streams determined as having a relatively low priority are assigned a higher modulation rate than streams determined as having a relatively high priority and where the variable modulation rate dictates a rate at which a stream of encoded video is to be transmitted over a transmission channel. (See *Id.*, p. 6, ll. 1-4, 6-17).

The present invention, as recited in claim 10, relates to an encoder for encoding and transmitting video data. Specifically, the present invention describes a system for selecting a coding bit rate of the encoder. (See *Id.*, p. 5, ll. 8-9). The encoded video data is partitioned into a plurality of streams. (See *Id.*, p. 5, ll. 10-12). A determination of priority is made for each of the plurality of streams of encoded video data. (See *Id.*, p. 5, ll. 17-18). One of a plurality of

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

possible modulation rates is assigned to each stream of encoded video data based on the determined priority, where the plurality of possible modulation rates determine possible rates at which the encoded video data will be transmitted. (See Id., p. 6, ll. 1-4, 6-17).

The present invention, as recited in claim 15, relates to a program product stored on a recordable medium, which when executed, includes a system for transmitting encoded video data. Specifically, the present invention describes a means for determining a priority for each of a plurality of streams of encoded video data. (See Id., p. 5, ll. 17-18). A modulation rate is selected from a set of modulation rates for each stream of encoded video data based on the determined priority, where the selecting means selects a higher modulation rate for lower priority streams and selects a lower modulation rate for higher priority streams, and where the selected modulation rate determines a rate at which the stream of encoded video will be transmitted. (See Id., p. 6, ll. 1-4, 6-17).

The present invention, as recited in claim 19, relates to a method of encoding and transmitting video data. Specifically, the present invention describes selecting a coding bit rate between an upper and lower bound of an available set of modulation rates. (See Id., p. 5, ll. 8-9). The video data is encoded at the selected coding bit rate. (See Id.). A priority is determined for each of a plurality of streams of encoded video data. (See Id., p. 5, ll. 17-18). A plurality of possible modulation rates is assigned to each stream of encoded video data based on the determined priority, where a higher modulation rate is assigned to lower priority streams and a lower modulation rate is assigned to higher priority streams, and where the assigned modulation rate determines a rate at which the stream of encoded will be transmitted. (See Id., p. 6, ll. 1-4, 6-17).

The present invention, as recited in claim 21, relates to a decoder for decoding encoded video data made up of different streams. (See Id., p. 5, 10-12). The different streams are transmitted using different modulation schemes determined on a priority of each stream. (See Id., p. 6, ll. 1-4, 6-17). The decoder includes a system for detecting and decoding the different modulation schemes. (See Id., p. 9, ll. 4-6).

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

6. Grounds of Rejection to be Reviewed on Appeal

I. Whether claims 1, 2, 4-17, and 19-21 are unpatentable under 35 U.S.C. § 102(e) as anticipated over U.S. Patent No. 6,292,512 (Radha).

7. Argument

I. The Rejection of Claims 1, 2, 4-17, and 19-21 Under 35 U.S.C. § 102(e) as Being Anticipated Over Radha Should Be Reversed.

A. The Examiner's Rejection

In the final Office Action, the Examiner rejected claims 1, 2, 4-17, and 19-21 under 35 U.S.C. § 102(e) as being unpatentable over Radha. (See 1/17/06 *Office Action*, p. 2, ll. 13-15).

Radha discloses coding a portion of input video data using a frame-prediction coding technique and then coding another portion of the video data using fine-granular scalability coding. (See Radha, col. 2, ll. 24-29). A portion of the original video data is coded using a standard frame-prediction coding technique. (See col. 6, ll. 16-18). A base layer encoder compresses the video data using a predetermined bit-rate. (See Id., col. 6, ll. 22-23). The enhancement layer (EL) bitstream comprises a plurality of embedded fine-granular scalable images, meaning that the bitstream is comprised of an initial coarse image and one or more enhancements thereto. (See Id., col. 7, ll. 62-66). Once the EL bitstream is provided to a real time scalable video rate controller, it selects images from the EL which have a bandwidth that substantially corresponds to the difference between the actual bandwidth of a network and the bandwidth of the base layer. (See Id., col. 8, ll. 15-26).

B. The Cited Patent Does Not Disclose Assigning a Variable Modulation Rate to Each Stream of Encoded Video Data Based on the Determined Priority as Recited in Claim 1.

The Examiner asserts that Radha discloses the transmitted rate is related to an encoding rate, specifically, R_{BL} (the base layer encoding rate). (See 9/26/2005 *Office Action*, p. 2, ll. 23-26). However, since Radha describes that the transmitted rate corresponds to an

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

available bandwidth on a network, the Examiner's claim is unfounded. (See Radha, col. 8, ll. 21-26).

As discussed above in the Summary of Claimed Subject Matter, the variable modulation (*i.e.*, transmission) rate to each stream of encoded video data is based on a determined priority. Specifically, claim 1 recites "a system for assigning a variable modulation rate to each stream of encoded video data based on the determined priority." Consequently, streams determined to have a relatively low priority are assigned a higher modulation rate than streams determined to have a relatively high priority. On the other hand, the transmission rate of Radha does not depend on an encoding rate. Specifically, R_{BL} is a pre-determined bit rate for a base layer. R_{BL} is then used to determine the available bandwidth on the network in order to transmit an enhancement layer bitstream, *i.e.*, the available bandwidth is determined by taking the difference between an available bandwidth and the bandwidth occupied by R_{BL} . (See Id.) Once the subsequent bandwidth is determined, a real-time scalable video rate controller selects images from the enhancement layer for transmission. Thus, Radha teaches that the encoding of the video data and the transmission of the coded data are independent of one another. In Radha, the transmission rate is dependent on an available bandwidth that is available after considering R_{BL} . (See Id., col. 8, ll. 26-30). There is no teaching or suggestion in Radha that the transmission rate should be dependent on a determined priority. In fact, there is no teaching or suggestion in Radha that a determination of priority is relevant to transmission rates.

Thus, Radha does not disclose "assigning a variable modulation rate to each stream of encoded video data based on the determined priority," as recited in claim 1. Accordingly, it is respectfully submitted that claim 1 and its corresponding dependent claims (*i.e.*, claims 2, 4-9) of the present invention differs from the teachings of Radha, since Radha describes a transmission rate proportional to bandwidth availability.

Independent claims 10, 15, 19, and their corresponding dependent claims (*i.e.*, claims 11-14, claims 16-17, and claim 20, respectively) recite substantially the same limitation as claim 1, including "assigning a variable modulation rate to each stream of encoded video data based on the determined priority." Independent claim 21 recites substantially the same limitation as claim 1, including "using modulation schemes determined based on a priority of each stream." Thus, it is respectfully submitted that these claims are also not taught or disclosed by Radha.

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

8. Conclusions

For the reasons set forth above, Appellants respectfully request that the Board reverse the final rejection of the claims by the Examiner under 35 U.S.C. § 102(e), and indicate that claims 1, 2, 4-17, and 19-21 are allowable.

Respectfully submitted,

Date: June 7, 2006


By _____
Oleg F. Kaplun (Reg. No. 45,559)

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

CLAIMS APPENDIX

1. A system for transmitting encoded video signals, comprising:
a system for partitioning encoded video data into a plurality of streams,
a system for determining a priority for each of a plurality of streams of encoded video data; and
a system for assigning a variable modulation rate to each stream of encoded video data based on the determined priority, wherein streams determined as having a relatively low priority are assigned a higher modulation rate than streams determined as having a relatively high priority, and wherein the variable modulation rate dictates a rate at which a stream of encoded video is to be transmitted over a transmission channel.
2. The system of claim 1, wherein streams determined as having a relatively high priority are assigned a lower modulation rate than streams determined as having a relatively low priority.
4. The system of claim 1, further comprising a system that ensures that an average modulation rate substantially conforms to a predetermined target rate for the plurality of streams.
5. The system of claim 1, wherein the system for partitioning partitions the encoded video data based on a criteria selected from the group consisting of: distinctions between frame type, distinctions between header and non-header data, distinctions between base layer and enhancement layer streams present in a scalable coded video, and distinctions in video packets containing data corresponding to at least one macroblocks.
6. The system of claim 1, wherein the priority of each stream is determined based on an MPEG frame type, and wherein streams containing I frames are determined to have a relatively higher priority than streams containing P frames, and streams containing P frames are determined to have a relatively higher priority than streams containing B frames.
7. The system of claim 1, wherein the priority of a stream containing at least one macroblock is determined based on motion and texture information contained in the macroblock.

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

8. The system of claim 1, wherein the system for determining priority assigns a relatively higher priority to MPEG header data than it assigns to non-header MPEG data.
9. The system of claim 1, wherein the priority of a stream is based on base and enhancement layers, and wherein a relatively higher priority is assigned to base layers than is assigned to enhancement layers.
10. An encoder for encoding and transmitting video data, comprising:
 - a system for selecting a coding bit rate of the encoder;
 - a system for partitioning encoded video data into a plurality of streams;
 - a system for determining a priority for each of the plurality of streams of encoded video data; and
 - a system for assigning one of a plurality of possible modulation rates to each stream of encoded video data based on the determined priority, wherein the plurality of possible modulation rates determine possible rates at which the encoded video data will be transmitted.
11. The encoder of claim 10, wherein the plurality of possible modulation rates includes a low modulation rate below the coding bit rate and a high modulation rate above the coding bit rate.
12. The encoder of claim 11, wherein streams determined as having a relatively high priority are assigned the low modulation rate.
13. The encoder of claim 11, wherein streams determined as having a relatively low priority are assigned the high modulation rate.
14. The encoder of claim 11, further comprising a system that ensures that an average modulation rate is maintained at the coding bit rate for the plurality of streams.
15. A program product stored on a recordable medium, which when executed, includes a system for transmitting encoded video data, the program product comprising:

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

means for determining a priority for each of a plurality of streams of encoded video data;
and

means for selecting a modulation rate from a set of modulation rates for each stream of encoded video data based on the determined priority, wherein the selecting means selects a higher modulation rate for lower priority streams and selects a lower modulation rate for higher priority streams, and wherein the selected modulation rate determines a rate at which the stream of encoded video will be transmitted.

16. The program product of claim 15, further comprising encoding means that determines a coding bit rate of the plurality of streams, wherein the coding bit rate is selected between an upper and lower bound of the set of modulation rates.

17. The program product of claim 16, further comprising means for ensuring that an average modulation rate is maintained at the coding bit rate for the plurality of streams.

19. A method of encoding and transmitting video data, comprising the steps of:
selecting a coding bit rate between an upper and lower bound of an available set of modulation rates;
encoding the video data at the selected coding bit rate;
determining a priority for each of a plurality of streams of encoded video data; and
assigning one of a plurality of possible modulation rates to each stream of encoded video data based on the determined priority, wherein a higher modulation rate is assigned to lower priority streams and a lower modulation rate is assigned to higher priority streams, and wherein the assigned modulation rate determines a rate at which the stream of encoded will be transmitted.

20. The method of claim 19, comprising the further step of:
ensuring that an average transmission rate each of the plurality of streams substantially conforms with the selected coding bit rate.

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

21. A decoder for decoding encoded video data made up of different streams, wherein the different streams were transmitted using different modulation schemes determined based on a priority of each stream, and wherein the decoder includes a system for detecting and decoding the different modulation schemes.

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

EVIDENCE APPENDIX

No evidence has been entered or relied upon in the present appeal.

Serial No.: 09/976,338
Group Art Unit: 2613
Attorney Docket No.: US 010526

RELATED PROCEEDING APPENDIX

No decisions have been rendered regarding the present appeal or any proceedings related thereto.